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## Crafts of Color: Tupi *Tapirage* in Early Colonial Brazil

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# CRAFTS OF COLOR: TUPI *TAPIRAGE* IN EARLY COLONIAL BRAZIL

*Amy Buono*

And that is why the Indians of the land are accustomed to pluck the feathers [of the *coricos* parrot] while young, and to dye the birds with the blood of a certain toad to which they add certain other ingredients: and when the feathers grow out once more they are exactly the color of the real ones [of another species]. Thus it happens that the Indians deceive people by selling them for the true species.

Pero Magalhães de Gândavo, 1576<sup>1</sup>

## Introduction

Tyrian purple. Lamp black. Lead white. Cadmium yellow. Ultramarine blue. The materiality of color, as it is often discussed, has a fixed quality. Pigments and dyes derived from many natural substances—minerals, earths, plants, and animals—have stable optic qualities. Lapis lazuli can be reliably counted upon to be blue. Dyes made from cochineal consistently fall within a certain range at the red end of the spectrum. Similarly, we might expect that the green feathers of a bird such as the Festive Parrot (*Amazona festiva*), after molting, would be replaced by equally green plumes. As the excerpt above suggests, from a letter written in Brazil by the Portuguese humanist Gândavo, this need not always be the case. In this chapter, I will discuss the cultural and conceptual ramifications of the feather alteration practices of the Tupi “nations” of sixteenth- and seventeenth-century coastal Brazil, one of the most sophisticated featherworking cultures of the Americas.<sup>2</sup>

The color modification process called *tapirage* (or *tapiragem*) in modern literature, or *contrafeito* (counterfeiting) in early modern literature, causes birds to grow feathers in a different color than they were genetically programmed to do.<sup>3</sup> According to many ornithologists in Brazil today, *tapirage* is one of the most intriguing ethnozoological “problems” in indigenous South American artistic and ritual practice.<sup>4</sup> It has been documented in archeological objects from Ancient Peru and continues to be practiced

in indigenous communities in Lowland South America today.<sup>5</sup> This gives some sense of the historical depth and geographic breadth of the practice. Through *tapirage*, human intervention ontologically transforms the colors of nature, turning the coloration of living feathers into a cultural, rather than a natural, phenomenon.

Color, of course, has social, symbolic, and ritual meanings that vary widely among cultures.<sup>6</sup> The greenness of jade, or the blueness of lapis, does not signify the same things to everyone. So, too, is the act of transforming color susceptible to different readings by those who effect the changes and those who observe the results. As a result of *tapirage*, color may be interpreted as intention, rather than as a purely physical quality. This has significance for understanding both color production (how and why are feather colors changed?) and reception (what did an early colonial viewer or buyer of Tupi featherwork make of its altered color?).

### ***Tapirage: Practice and Process***

To begin, what are the physical processes and variables involved in *tapirage*? The term originated in French Guiana, where the creole root *tapiré* describes both the process of changing the color of feathers and its outcome.<sup>7</sup> The French explorer and geographer Charles-Marie de la Condamine (1701–74) first reported that the verb *tapirer* was used in the Carib language to denote the act of changing the colors of living feathers, based on observations made and reports received while he resided in the Guianese community of Cayenne.<sup>8</sup> In the 1920s, Swiss anthropologist Alfred Métraux suggested that *tapirage* was pan-South American in nature, occurring in many Native American communities from the sixteenth through twentieth centuries and across a broad geographic range, most heavily in the forested areas north of the Amazon River but extending as far south as the latitudinal border of the Tropic of Capricorn.<sup>9</sup> This geographic and chronological range includes the Tupi peoples inhabiting coastal Brazil at the time of European contact.

The colonial textual sources concerning *tapirage* and Tupi featherwork in general include such materials as missionary letters, natural history surveys, administrative treatises, and images from Portuguese, German, French, and Dutch travelers, naturalists, missionaries and merchants. Most importantly, the feathered capes themselves, produced as they were within colonial Brazil, are our most informative primary sources, giving us different kinds of information—material, technical, and cultural. What is worth noting is that the European reception of the featherwork spanned Northern and Southern Europe, and included Italy, Portugal, Germany, the Netherlands, and Denmark. For the purposes of this discussion, we will focus primarily on the cultural understanding of *tapirage* by the Portuguese and the Tupi.

At a biological level, the process of *tapirage*, as described in the ethnozoological literature, most significantly in the work of ornithologist Dante Martins Teixeira, involves the creation of an imbalance between the pigment-based and structural causes of feather coloration.<sup>10</sup> For parrots and macaws, the birds most frequently associated with *tapirage*, the primary sources of pigmentation are psittacofulvins and melanins.

In combination, these pigments produce a range of colors from red to black. The structural source of coloration refers to the "coherent scattering" of light by the physical structure of the feather's surface to produce colors ranging from white and light blue, to dark blues and greens, depending on the absence or presence of feather pigmentation.<sup>11</sup> These two sources of coloration work in concert to produce the various colors found on all species of parrot. Feather coloration in other birds is created by the same means, though the pigments involved may differ. *Tapirage* suppresses or eliminates the melanins in the feather, which generally results in feathers that are yellow to ruddy in color, depending on the presence of other pigments and on structural characteristics.

*Tapirage* is performed through the external and/or internal application of plant- and/or animal-derived substances to particular species of bird. According to the sources compiled by Teixeira, these substances fall into three groups: plant dyes; blood and/or skin secretions from toads and frogs; and fats from fish, from pink river dolphins, from turtle, chicken or crocodilian eggs, or from plants, such as *dendé* oil.<sup>12</sup> The application itself takes two principal forms. The first, an external application, involves plucking feathers from the living bird and rubbing the exposed, traumatized follicles with an unguent of one or more of these substances. In time, the feathers to grow back in a new color, almost always partially or fully yellow.<sup>13</sup> As Teixeira notes, this method is predicated upon the domestication of birds, given the lengthy period required between the plucking of plumes in the first place and the harvesting of the altered feathers.<sup>14</sup> The other method is internal, based upon feeding the birds diets extremely rich in the animal and plant fats mentioned above. The most common source for the fats appears to be river fish, such as the *pirara* catfish, or other animals, such as the pink river dolphin; eggs; or plant substances such as *dendé* oil.<sup>15</sup> Here, too, the process speaks to domestication, since the bird must be fed these fats over an extended period in order to create the desired effect.

The efficacy of all of these techniques is thrown into question by the fact that a *tapirage*-like effect appears in wild birds. Some birds in nature display "partial albinism," where the loss of local melanin causes some of the birds' plumes to appear white, or (where other pigments such as the psittacofulvins remain present) to have yellow or ruddy hues.<sup>16</sup> *Tapirage* and naturally occurring partial albinism thus result in an equivalent color effect; put another way, *tapirage* as a process imitates whatever dietary or traumatic stress causes partial albinism. As Teixeira rightly points out, this makes it nearly impossible to determine whether the altered color of a particular feather was humanly induced or not. Teixeira goes on to note that in two informal experiments, feather color change appeared to be solely the result of trauma to the follicle through plucking, rather than the application of unguents or dietary changes.<sup>17</sup> On this basis, he questions whether any of the *tapiré* produced in indigenous cultures is the result of anything more than the repeated harvesting of feathers of captive birds: in essence, the repeated localized traumatization of the follicle. If the simple plucking of feathers results in the observed color change, are the various unguents either effective or necessary? As an ornithologist Teixeira appears to dismiss the early modern chroniclers' interpretations of the *tapirage* process as having a "mysterious" or "magical" significance.<sup>18</sup> He suggests that if the effect occurs without human intervention, or as an accidental byproduct of the simple harvesting of feathers, then it ceases to have any ritual and religious overtones.

But is this necessarily the case? Regardless of its physical efficacy, early colonial sources clearly reveal that *tapirage* was practiced in Tupi communities. As an activity closely associated with ritual (both indigenous and Christian), we cannot so easily dismiss its cultural significance. Above all, it is the transformative nature of *tapirage* that is a cultural signifier, perhaps more than the color that is produced as a result.

### Transformative Contexts

The Tupi of coastal Brazil, distributed in communal “nations” along four thousand miles of the eastern seaboard during the sixteenth and seventeenth centuries, were the first practitioners of featherwork encountered by Europeans on mainland South America.<sup>19</sup> The Tupi were a semi-nomadic society who practiced small-scale agriculture and were best known in early modern Europe as both anthropophagic and adorned with feathers (Fig. 14.1). Most estimates put the population at about 625,000 at the moment of contact in 1500.<sup>20</sup> Tupi culture was largely ephemeral, centering on ceremonial traditions that involved dance, sound, movement, and adornment. It is for this ritual context that they produced much of their featherwork, including capes, headdresses, and large ornaments for the buttocks called *enduaps*. To our knowledge, there is no surviving Tupi featherwork in Brazil today, although other kinds of artifacts such as ceramics have been recovered through archeological excavations of Tupi sites along the Atlantic coast. Only 11 feathered capes remain, all remnants of early-modern European collections<sup>21</sup> (see Plate 36).

An old Tupi term for the capes, *guará-abucu* [long cape of feathers], refers to the predominant use of scarlet ibis, or *guará*, feathers in their manufacture.<sup>22</sup> As my research has shown, all but one of these plumed capes was produced after the arrival of the Portuguese on Brazil’s shore in 1500.<sup>23</sup> Thus the capes belong within the context of the diverse cultural tapestry of colonial Brazil, comprised of a remarkably wide range of indigenous, European and African peoples.

The Tupi placed greater value on certain colors of feathers, with red and especially yellow being the most coveted.<sup>24</sup> In consultation with ornithologists, I have identified yellow-colored feathers from a scarlet ibis, which must have been modified either through *tapirage* or another etiology of partial albinism.<sup>25</sup> To return to the specifics of the *tapirage* process, green or blue feathers are plucked from young parrots, or scarlet ones from an ibis (Plate 37), after which the open follicles are pasted with a concoction made from the skin secretions of the *Dendrobates tinctorius*, or the “dyeing poison frog.”<sup>26</sup> In the mid-nineteenth century, the British naturalist Alfred Russell Wallace provided further details of the process, describing in detail how a tree frog is pricked repeatedly with thorns to release blood and then placed in a pot with ground red pepper, which causes the frog to produce enzyme-containing skin secretions. These enzymes, when mixed with *urucu* powder (*Bixa orellana*, a shrub that produces the yellow-orange pigment annatto and the spice *anchiote*), yield a paste that is smeared on the parrot’s follicles.<sup>27</sup> The feathers that grow back are brilliant yellow or orange in hue, with no



**Warhafftiger kurzer Ge-  
richt/handel vnd sitten der Tuppin In-  
bas/derer gefangner ich gewesen bin/Wonen in Ame-  
rica/ire landt schaffet ligt in in 24. gradus vñ der  
Seiden seit d linien æquinoctial/ir landtskoffet  
an eyn reffer/Xio de Jenero genant.**



14.1 Hans Staden, frontispiece to *Warhafftige Historia vnd Beschreibung eyner Landtschafft der wilden, nacketen, grimmigen Menschfresser Leuthen, in der Newenwelt America* [The True History of his Captivity ...] Gedruckt zu Marburg: Im Kleeblatt, bei Andres Kolben, Im Jar M.D.LVII [1557], woodcut. © John Carter Brown Library, Providence RI

trace of the original scarlet. After this procedure, the bird supposedly continues to produce yellow feathers for the rest of its life, a point that Teixeira calls into question throughout his article.

### Mimesis and Ritual

The modifications used in the featherworking techniques of Tupi plumists indicate a considerable interest in mimesis. The ibis feathers with which they work are frequently trimmed, and occasionally dyed and, as just discussed, possibly altered in color through *tapirage*. In addition, several methods are used to secure the feathers to the underlying fiber matrix. The latter binding techniques enable the featherworker to imitate the natural contours of a bird's body and to reproduce, for example, the physical and textural appearance of either an adult bird or a chick. By choosing and updating the appropriate feathers to use on each part of the cape, and binding them using a repertoire of techniques to create a "natural" appearance, Tupi plumists created a diverse range of highly specific mimetic effects.

To give an example, a yellow Tupi bonnet in Copenhagen's Nationalmuseet Etnografisk Samling is made from bird down (the fine feathers underneath the tougher exterior ones), in contrast to the mature feathers used on the extant capes<sup>28</sup> (Plate 38). By binding several pieces of down to a wooden core, and then attaching this assemblage perpendicularly to the pineapple-fiber and cotton-mesh matrix of the bonnet, the featherworker has compellingly captured the fluffy appearance of a baby bird. In the extant capes, by contrast, only contour feathers from the body and wings of the adult bird were used, attached directly to and lying flat against the matrix, thus imitating the sleek body profile of an adult scarlet ibis.

The Tupi cape that contains color-altered ibis feathers, possibly by *tapirage*, is housed in the Ambrosiana Library in Milan and was once a central object in the famed seventeenth-century Milanese collection of the cleric Manfredo Settala (1600–80).<sup>29</sup> This cape is a critical object for the study of the ethnozoological practice of *tapirage* in the sixteenth and seventeenth centuries and an excellent example of why the detailed physical examination of these capes is so important. Now faded and worn, this cape is made predominantly with feathers from the scarlet ibis, with the addition of plumes from the scarlet macaw, military macaw, and oropendola blackbird.<sup>30</sup>

Teixeira identified the coastal indigenous populations of Brazil, as well as those of the Amazon basin (in distinction to indigenous populations of Central Brazil and the Chaco region) as practising the "blood or skin secretions" version of *tapirage*, using bodily fluids from tree frogs to create the unguent applied to the feather follicles.<sup>31</sup>

The fact that partial albinism of birds occurs in nature raises very interesting questions about the mimetic effects of both the production of Tupi capes and their use in transformative rituals. One manner in which the Tupi may have acquired feathers altered to yellow is through hunting and trapping. Considering the rarity with which partial albinism occurs in nature, this strongly suggests that these particular birds were selectively targeted and therefore that a higher value was placed on these aberrations.

Further, the deliberate choice to practice *tapirage* should likely be seen as something other than simply a means of acquiring yellow feathers, especially given the extensive time and intensive labor involved. With the mimetic qualities of Tupi featherwork discussed in mind, *tapirage* may well have been similarly directed toward mimicking partial albinism as witnessed in nature, thus selecting an anomaly to imitate rather than the norm. In terms of their ritual use, if the act of wearing these mimetic capes was itself transformative, turning its wearer into a bird or a divine entity in avian form, as Terence Turner has shown to be the case in contemporary Kayapo ritual, then those capes utilizing *tapiré* sought specifically to imitate the appearance of these extremely rare color variants. Thus the dancer wearing a *tapiré* cape transforms into a bird entity that is itself already transformed.

If we return this discussion to the contact sites in colonial Brazil where these cloaks were worn and performed, this notion of transformation becomes still more complex. One of the first Jesuits to arrive in Brazil, Father José de Anchieta (1534–97), wrote of the Tupi regard for the *guará*:

There is also another form of maritime sparrow, going by the name of *guará*, similar to the *mergo* [generic word for sea-bird], but with longer shinbones, also with an elongated neck and a lengthened and curved beak; it feeds on crabs and is highly ravenous. It experiences a constant metamorphosis: in young age it is covered with white feathers, which later turn to ash-color; later they whiten again, however to a lesser whiteness than before, ultimately they are decorated by a purple and most beautiful color; these [birds] are highly valued by the Brazilians since they use them to ornament their hair and arms in their festivities.<sup>32</sup>

Anchieta's letter touches on the ibis's color change as it matures, the "metamorphosis," as he calls it. He also explains at least one of the reasons why the Tupi held them in such high esteem, when he writes of the *guará* as the source of the feathers they use to "ornament their hair and arms in festivities."

The feathered mantles were worn in a wide range of ritual circumstances, serving as signs of social prestige during local assemblies and as markers of ceremonial role during captive-captor ceremonies and post-battle celebrations. Tupi featherworking techniques suggest that an important ritual aspect of the feathered capes and bonnets in religious ritual was the visual and tactile imitation of living birds. The textural contrast between the Tupi feathered bonnet and the full-length cape, between new-born and adult birds, exemplifies how Tupi featherworking techniques may have contributed to a ritual avian identification.

### Reception in the Marketplace

European authors expressed great fascination with the feathered objects of the Tupi, which was often cast in terms of, and later actually within, commercial exchange. For example, the German Hans Staden (1525–79) remarked that the most important possessions of the Tupi were their bird feathers: "Their treasures are the feathers of birds. He that has many feathers is rich."<sup>33</sup>



The account by the Portuguese humanist and traveler Pero Magalhães de Gândavo (1540–80), used as an epigraph at the beginning of this chapter, confirms the presence of Tupi *tapirage* within the newly founded colonial market. In 1576, when discussing a sale of feathers and featherwork in the market that he witnessed, he comments that: “the Indians deceive people by selling [the altered feathers] for [those of] the true species.”<sup>34</sup> For Gândavo, *tapirage* carried no associations with ritual use but instead was used deliberately and fraudulently as a scheme for illicit financial gain by hawking counterfeit exotic naturalia. He thus saw the Tupi as skillfully manipulating the marketplace, a colonial site of social and material exchange introduced by the Europeans.

Where were the capes made that were sold in the market and sent to Europe? Jesuits not only observed and possibly encouraged the production of feathered capes but they also utilized them as vestments within the Christianized space of their *aldeias* or mission settlements. In 1557, the Spanish Jesuit priest Antonio Blázquez wrote to his superiors as to how his colleague, Father Navarro, baptized the Brazilians a day before the scheduled execution of a prisoner:

When the morning dawned the Indians came with a great thunder and bravura, with their backs painted and full of parrot feathers, the same ones they use to construct their capes for these ceremonies. And putting them in a circle Father Navarro taught them to comprehend the baptism and the forgiveness of their sins. Afterwards, he baptized them.<sup>35</sup>

The men and women of this Bahian *aldeia* were baptized while wearing their own culture’s feathered adornments. That the Jesuits permitted the use of Tupi ritual ornament in a baptismal ritual shows that they recognized their value in solemnizing a particularly significant—and again transformative—ceremony. The Jesuits may well have equated the cultural significance of Tupi featherwork, as a component in the performance of indigenous, spiritually transformative rituals, with Christian sacramental rites.

This was not the only occasion on which Tupi featherwork was ritually performed. In the same letter to Loyola, Blázquez also describes an extraordinary event he had witnessed among the Tupi. His letter recounts the events leading up to the ritual execution of a captive enemy. He related one particular scene in some detail:

Six nude women came by the public square, singing in their customary way, and making such gestures and shaking movements that they really did seem like demons. From head to feet they were covered with red feathers. On their heads they wore caps [in the style of “Inquisition” caps] of yellow feathers. On their backs they wore an armful of feathers that appeared like a horse’s mane, and to animate the celebration they played flutes made from the shinbones of their slain enemies. With this attire they walked around *barking like dogs and faking speech* with so many mimes that I do not know with what I could compare them. All of these acts took place six or eight days before the killing.<sup>36</sup>

The yellow-feathered vestments of the “demonic” women may well have been *tapiraged* scarlet ibis cloaks. It is impossible to know what non-human sounds Blázquez refers to as “barking like dogs,” but it clearly struck him as in some way mimetic of animal noises.

One of the most interesting aspects of Blázquez’s description of the women is his use of the word “imitate” to describe the sounds emanating from their mouths: “walking around barking like dogs and imitating speech with so many mimes.” The Portuguese term he uses is *contrafazer*, which is also the term Gândavo employs for *tapirage*.

The linguistic comparability between the “imitation” of the color of a bird’s feather and the “imitation” of speech highlights some of the dynamics of the colonial marketplace. In the first instance, it indicates a perception that Tupi featherworkers had used technical processes equivalent to European illusionistic art techniques. Taken together, both the Gândavo and Blázquez anecdotes signal the existence of a broader insecurity with the perception of Tupi intentionality underlying these acts of mimesis.

If we recall Gândavo’s comments about *tapirage*, that “the Indians deceive people by selling [the altered feathers] for [those of] the true species,” we encounter another connotation of the word *contrafazer* that is much closer to our modern definition of counterfeiting, substituting a fake for an object of value.<sup>37</sup> This is very different perception of the intention underlying *tapirage* as a transformative process; translated into European terms, apparently the most obvious motive was profit.

## Conclusion

As Marshall Sahlins, Michael Taussig, and Dante Martins Teixeira have noted, the symbolic or cultural meaning ascribed to any particular color is open-ended; each culture ascribes its own system of meaning and value.<sup>38</sup> This chapter, though, has been less concerned with a particular color than with a process of color transformation: *tapirage*. Within the Tupi world, *tapirage* may well have represented a doubling of ritual metamorphosis: ritual and spiritual transfiguration of human into a bird that itself had undergone a color transformed in color. The cultural import of such a color transformation, just like the significance of a color, will vary from group to group. For early European witnesses such as Souza, Blázquez and Gândavo, *tapirage* clearly had very different meanings, some connected to deceptive marketplace practices, others to puzzling and disturbing religious rituals, and yet others to the transformative sacraments of Christianity. Color production in sixteenth-century Brazil was thus encompassed by more than the felling, exportation, and commercial pulping of Brazilwood trees (*Caesalpinia echinata*) to feed the burgeoning red-dye trade in Northern Europe; it was also imbricated into the complex social interactions and cultural collisions of colonial Brazil. As we have seen, *tapirage* demands that the color of bird feathers be seen as a cultural as well as a natural phenomenon. Exploring the technical as well as the symbolic aspects of color as a form of intention will provide important new insights into the study of colonial Brazil, and the cultural coding of color in various cultural systems. Much work remains to be done. Further understanding of the cultural significance of *tapirage* will require the collaboration of ornithologists, ethnozoologists, anthropologists, cultural and art historians, as well as living featherwork practitioners.

## Notes

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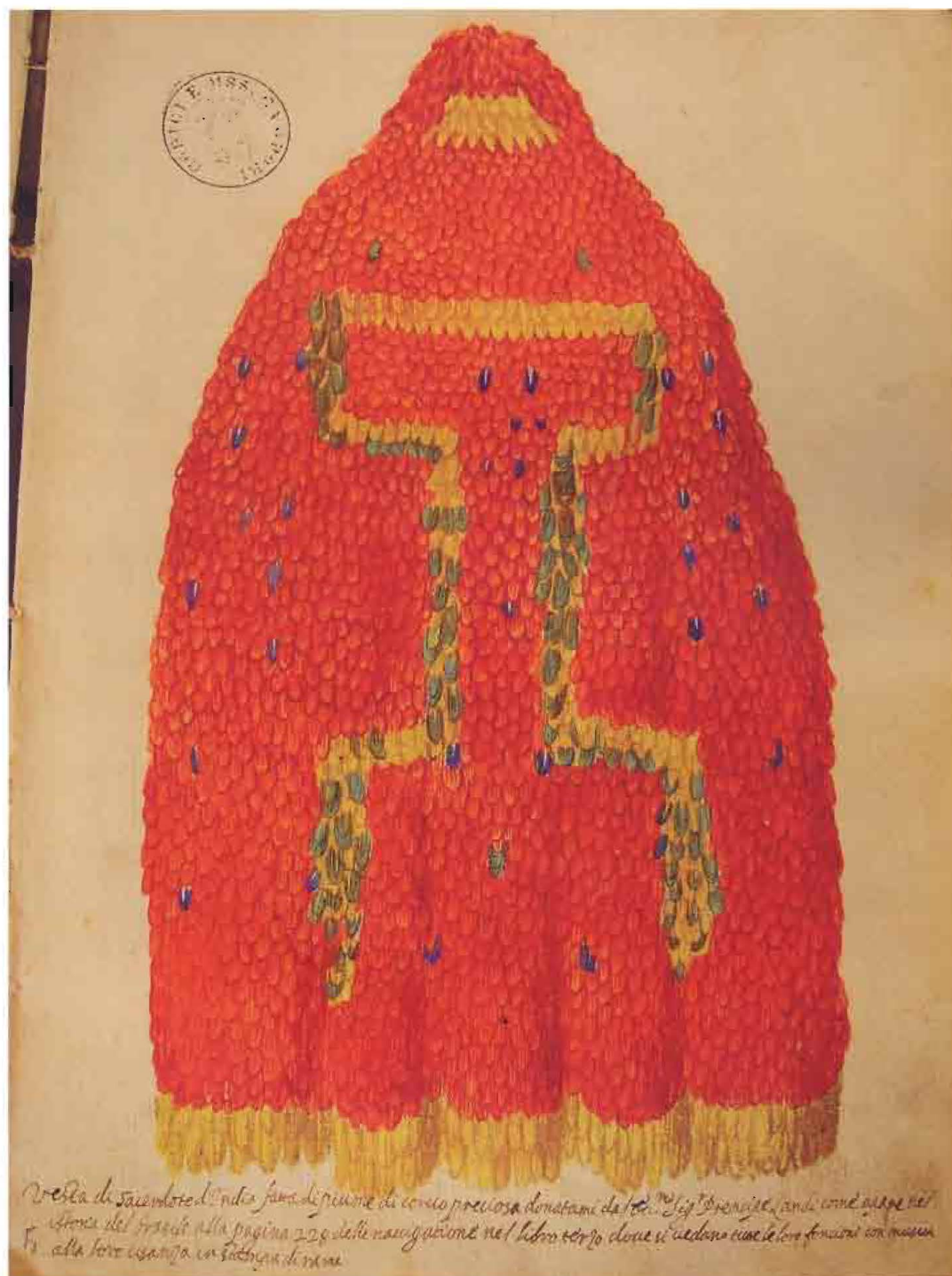
Museu Nacional, Rio de Janeiro, and Dr Carla J. Dove and assistant Marcy Heacker-Skeans of the Smithsonian's Division of Birds. In Italy, the Rev. Mons. Ravasi and Padre Navonni of the Biblioteca Ambrosiana, and Professor Laura Laurencich-Minelli of the Università di Bologna enabled my access to the Ambrosiana cape. Special thanks to Professor Beth Fowkes Tobin for editorial assistance.

1. Pero Magalhães de Gândavo, *The Histories of Brazil*, trans. John Batterson Stetson (Boston: Longwood, 1978), 69.
2. Berta G. Ribeiro, "Bases para uma classificação dos adornos plumários dos índios do Brasil," *Arquivos do Museu Nacional (RJ)* 43 (1957): 59–72; Berta G. Ribeiro, *Arte indígena, linguagem visual*, Coleção Reconquista do Brasil, 3rd ser., special issue, vol. 9 (Belo Horizonte; São Paulo: Editora Itatiaia; Editora da Universidade de São Paulo, 1989).
3. The most comprehensive and fascinating study to date on the ethnozoological history of *tapiragem* is that of Prof. Dante Martins Teixeira of the Museu Nacional/UFRJ in Rio de Janeiro, Brazil: Dante Martins Teixeira, "Perspectivas da etno-ornithologia no Brasil: O exemplo de um estudo sobre a *tapiragem*," *Boletim Museu Paraense Emílio Goeldi* 8, 1 (1992): 113–21. Much of the discussion is a continuation of that of Swiss anthropologist Alfred Métraux's 1928 writings. Métraux's study was the first modern scholarly attempt to compile primary source descriptions of South American feather modification from the last 400-plus years. See Alfred Métraux, "La décoloration artificielle des plumes sur les oiseaux vivants," *Journal de la Société des américanistes de Paris* 20 (1928): 181–92. This article was amplified and published in English as Alfred Métraux, "*Tapirage*: A Biological Discovery of South American Indians," *Journal of the Washington Academy of Sciences* 34, 8 (1944): 252–55. The early modern term "*contrafazer*" (or counterfeiting) for *tapirage* is found as early as 1587 in Gabriel Soares de Sousa and Francisco Adolfo de Varnhagen, eds, *Tratado descritivo do Brasil em 1587*, Série Descobrimentos 9 (Recife: Fundação Joaquim Nabuco, Editora Massangana, 2000). It is a term still employed by indigenous groups today.
4. Teixeira, "Perspectivas."
5. For the Peruvian discussion of *tapirage*, see Ann P. Rowe and John Patton O'Neill, *Costumes and Featherwork of the Lords of Chimor: Textiles from Peru's North Coast* (Washington DC: Textile Museum, 1984). For a contemporary discussion of *tapirage* see Teixeira, "Perspectivas," 118; he cites personal communications with anthropologist Eduardo Viveiros de Castro (Museu Nacional/UFRJ, Rio de Janeiro, Brazil), and his documentation of *tapiraged* parrots among the Arauetê of southern Pará. Interestingly, this particular community does not recognize the resulting color change as *tapirage*, even though the domesticated parrots exhibit the altered coloration.
6. Marshall Sahlins, "Colors and Cultures," *Semiotica* 26, 1 (1976): 1–22; Umberto Eco, "How Culture Conditions the Colors we See," in *On Signs*, ed. M. Blonsky (Baltimore: Johns Hopkins University Press, 1985), 157–75.
7. Métraux, "La décoloration," 186.
8. The earliest etymologic reference was as follows: "Les Indiens des bords de l'Oyapoc ont l'adresse de procurer artificiellement aux perroquets des couleurs naturelles, différentes de celles qu'ils ont reçues de la nature, en leur tirant les plumes et en les frottant avec du sang de certaines grenouilles; c'est là ce qu'on appelle à Cayenne 'tapirer un perroquet.'" See Charles Marie de la Condamine, *Relation abrégée d'un voyage fait dans l'intérieur de l'amérique méridionale. depuis la côte de la mer du sud, jusqu'aux côtes du Brésil & de la guiane, en descendant la rivière des amazons* (Paris: Veuve Pissot, 1745), 173–74.
9. Métraux, "La décoloration," 183–84.
10. Teixeira, "Perspectivas," 113.
11. J. Dyck, "Structure and Spectral Reflectance of Green and Blue Feathers of the Rose-Faced Lovebird (*Agapornis Roseicollis*)," *Biologiske Skrifter* 18: 5–65; R.O. Prum et al., "Coherent Light Scattering by Blue Feather Barbs," *Nature* 396: 28–29.

12. Teixeira, "Perspectivas," 116. He states that animal substances were used by the indigenous cultures of Amazonia, as well as the coastal Tupi, while groups in Central Brazil and the Chaco region employed vegetable-based substances.
13. Ibid., 114.
14. Ibid., 117.
15. Ibid., 116.
16. Ibid., 117.
17. Ibid., 117.
18. Ibid., 119.
19. For a discussion of the culture designations of coastal Brazil, see John M. Monteiro, "The Crisis and Transformations of Invaded Societies: Coastal Brazil in the Sixteenth Century," in *The Cambridge History of Native Peoples of the Americas*, eds Frank Salomon and Stuart B. Schwartz (Cambridge: Cambridge University Press, 1999), 973–1024; and Carlos Fausto, "Fragmentos de história e cultura Tupinambá: Da cronologia como instrumento crítico de conhecimento etno-histórico," in *História dos índios no Brasil*, ed. Manuela Carneira da Cunha (São Paulo: Fundação de Amparo à Pesquisa do Estado de São Paulo; Companhia das Letras, 1992), 381–96; Eduardo Viveiros de Castro, *From the Enemy's Point of View: Humanity and Divinity in an Amazonian Society* (Chicago: University of Chicago Press, 1992).
20. There are various debates on the population figures. For one study, see William M. Denevan, "Native American Population in 1492: Recent Research and Revised Hemispheric Estimate," in *The Native Population of the Americas in 1492*, ed. William M. Denevan (Madison: University of Wisconsin Press, 1992), xvii–xxxviii. See also Monteiro, "The Crisis," 979.
21. Tupi feathered capes are located as follows: one in Basel, Museum der Kulturen; one in Brussels, Musées Royale d'Art et d'Histoire; five in Copenhagen, Nationalmuseet Etnografisk Samling; two in Florence, Museo di Storia Naturale, Università degli Studi di Firenze; one in Milan, Museum Septalium, Biblioteca Ambrosiana; and one in Paris, Musée du quai Branly. For further discussion see Amy Buono, "Feathered Identities and Plumed Performances: Tupinambá Interculture in Early Modern Brazil and Europe," PhD diss., University of California, Santa Barbara, 2007.
22. In the Old Tupi dictionary we find *asojaba* ("cloak or garland of feathers") and *guardabucu* ("long cloak of feathers"). See Luiz Caldas Tibiriçá, ed., *Dicionário Tupi-Português: Com esboço de gramática de Tupi Antigo* (São Paulo: Traço Editora, 1984), 69, 103.
23. Amy J. Buono, "Tupi Featherwork and the Dynamics of Intercultural Exchange in Early Modern Brazil," in *Crossing Cultures: Conflict, Migration, Convergence*, ed. Jaynie Anderson (Melbourne: Melbourne University Press, 2009).
24. The Tupi preference for yellow feathers is consistently documented throughout many primary sources. For two of the most compelling, see Pedro Vaz de Caminha, "Letter of Pedro Vaz de Caminha, Written in Porto-Seguro of Vera Cruz on the First Day of May in the Year 1500," in *Portuguese Voyages, 1498–1663*, ed. Charles David Ley (London: Phoenix, 2000), 41–59; Jean de Léry, *History of a Voyage to the Land of Brazil, Otherwise Called America*, trans. Janet Whatley (Berkeley: University of California Press, 1990).
25. I would like to thank Dr Carla J. Dove and assistant Marcy Heacker-Skeans of the Smithsonian's Division of Birds, for their kind assistance on 23 October 2006. Additionally, I extend my thanks to Dr Barbara Wattanabe, Museum Specialist of South American Ethnology at the Smithsonian, for further discussion of their comparative material.
26. Brice P. Noonan and Kenneth P. Wray, "Neotropical Diversification: The Effects of a Complex History on Diversity within the Poison Frog Genus *Dendrobates*," *Journal of Biogeography* 33 (2006): 1007–20.



27. Alfred Russell Wallace, *A Narrative of Travels on the Amazon and Rio Negro, with an Account of the Native Tribes, and Observations on the Climate, Geology, and Natural History of the Amazon Valley* (London: Reeve & Co., 1853), 202.
28. The Nationalmuseum object number is EH5932. Unlike the other feathered Tupi objects from the Copenhagen collection, this headpiece has never been cleaned due to the fragility of the down feathers. Though it appears to us today as a dark, army green, it was likely a brilliant yellow-green when first produced.
29. For a discussion of Settala's collection, see Antonio Aimi et al., eds, *Septalianum Musæum: Una collezione scientifica nella milano del seicento* (Florence: Giunti Marzocco, 1984).
30. The best study of birds in Brazil remains Helmut Sick, ed., *Birds in Brazil: A Natural History*, trans. William Belton (Princeton: Princeton University Press, 1993).
31. Teixeira, "Perspectivas," 116.
32. Trans. mine. "Est et alius passer marinus, guara nomine, mergo aequalis, sed tibiis longioribus, collo itidem producto, protento et adunco rostro; cancris pascitur, voracissimus est. Hic perpetuam quandam in se metamorphosim experitur: in prima enim aetate pinnis albis induitur, quae deinde in cinerium colorem mutantur, post aliquod tempus albescunt iterum, minore tamen, quam in prima aetate, candore, purpureo demum ac pulcherrimo colore decorantur; quae apud Brasilles in magno sunt pretio, illis enim ad capillos ornandos et brachia in suis utuntur solennitatibus." José de Anchieta, "[Do Ir. Jose de Anchieta ao P. Diego Laynes, Roma]," in *Monumenta Brasiliae*, vol. 3: 1558–1563, ed. Serafim Leite, SJ (Rome: MHSI, 1958), 230.
33. Neil L. Whitehead and Michael Harbsmeier, eds and trans., *Hans Staden's True Story: An Account of Cannibal Captivity in Brazil* (Durham NC: Duke University Press, 2008), 123.
34. Gândavo, *The Histories*, 69.
35. Trans. mine. "Como bem amanheceo vierão os Índios com grande terremoto e brafundaria com suas espadas pintadas e cheos de penas de papagayos, de que elles fazem capas pera estas festas, e levando-os ao corro fazia-lhes o P. Navarro huma pratica onde lhe encarecia o bautismo e o arrependimento de seus peccados, e após isto os bautizava." António Blázquez, "[Do Ir. António Blázquez por comissão do P. Manuel da Nóbrega ao P. Inácio de Loyola, Roma, 1557]," in *Monumenta Brasiliae*, vol. 2: 1553–1558, ed. Serafim Leite, SJ (Rome: MHSI, 1957), 387–88.
36. Trans. mine. "Vinhão seis molheres nuas polo terreiro cantando a seu modo e fazendo tais gestos e meneos que parecião os mesmos diabos: dos pees até a cabeça estavam cheas de penas vermelhas; em suas cabeças trazião humas como carochas de pena amarela; em suas espaldas levavão hum braçado de penas que parcia coma de cavalo, e por alegrar a festa tangião humas frautas que tem feitas das canellas dos contrarios pera quando os hão de matar. Com estes trajos andavão ladrando como cães e contrafazendo a fala com tantos momos que não sey a que os possa comparar; todas estas invenções fazem seite ou oito dias antes de hos matar." Blázquez, "[Do Ir. António Blázquez...]," 386.
37. Peter Parshall, "Imago Contrafacta: Images and Facts in the Northern Renaissance," *Art History* 16, 4 (December 1993): 554–79.
38. Michael Taussig, *What Color is the Sacred?* (Chicago: University of Chicago Press, 2009).



- 36 Unknown Italian artist, Tupi feathered cape with bonnet from illustrated inventory of Manfredo Settala's collection: Biblioteca Estense Universitaria, Modena, *Codice Campori*, 338 γ H.1. 21 fol. 5 recto. The later title to the Codex includes the words "disegni originali del Museo Settala" (Original Drawings of the Settala Museum)



37 Example of *tapiraged* feather of a scarlet ibis (*Eudocimus ruber*), specimen from The Division of Birds, National Museum of Natural History, Smithsonian Museum. Photo: Amy Buono (2007)





38 Tupi bonnet, Nationalmuseet Etnografisk Samling, Copenhagen, #EH5932, 29 cm, down parrot feathers. Photo: Amy Buono (2004)